May 19, 1970 R. E. WELLS 3,513,440

ELECTRICAL RELAYING SYSTEM FOR TRANSMISSION OF PARTICULARS OF BETTING WAGERS TO DISPLAY BOARD

Filed Aug. 11, 1966 6 Sheets-Sheet 1

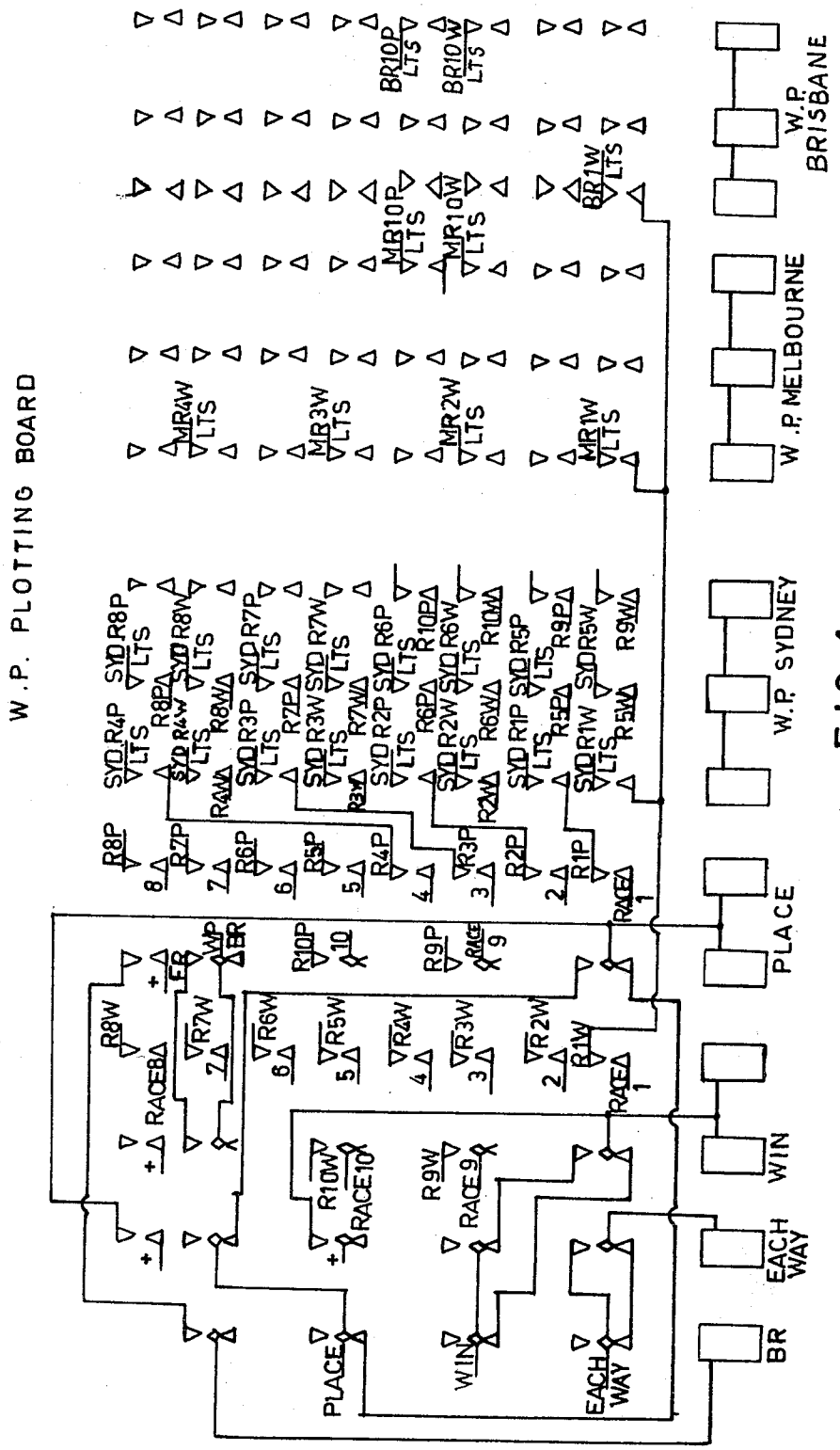


FIG. 1

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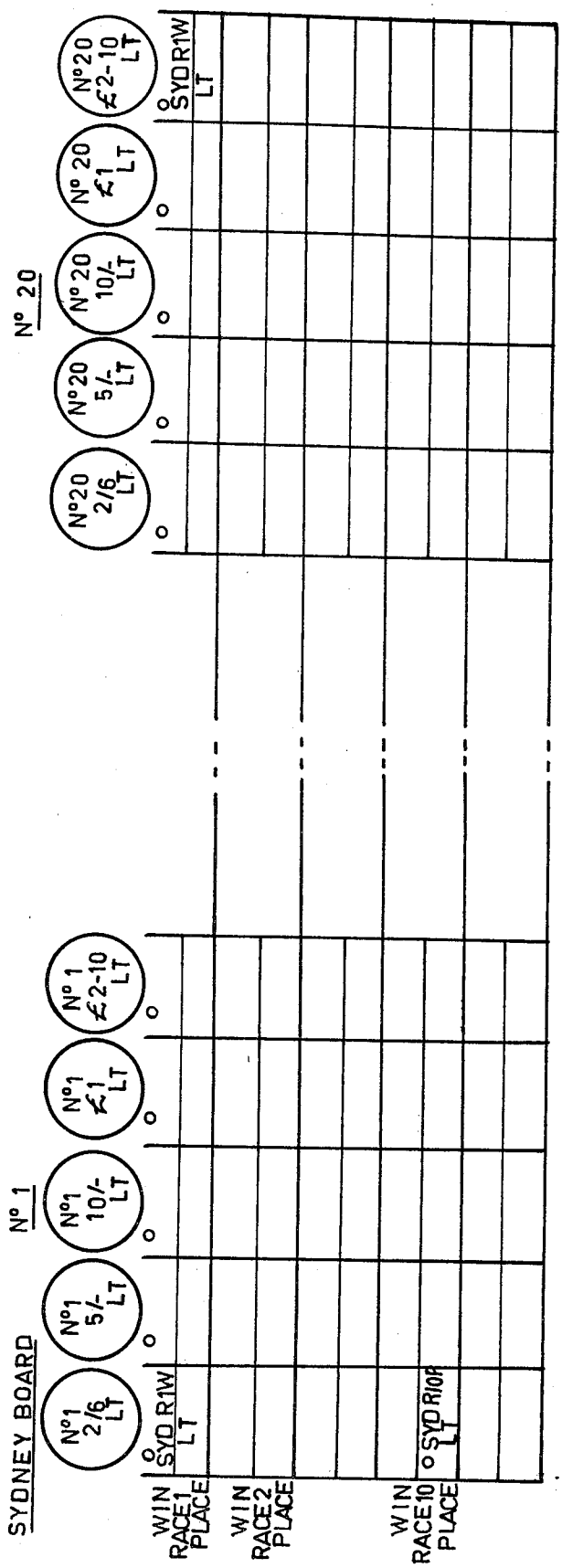


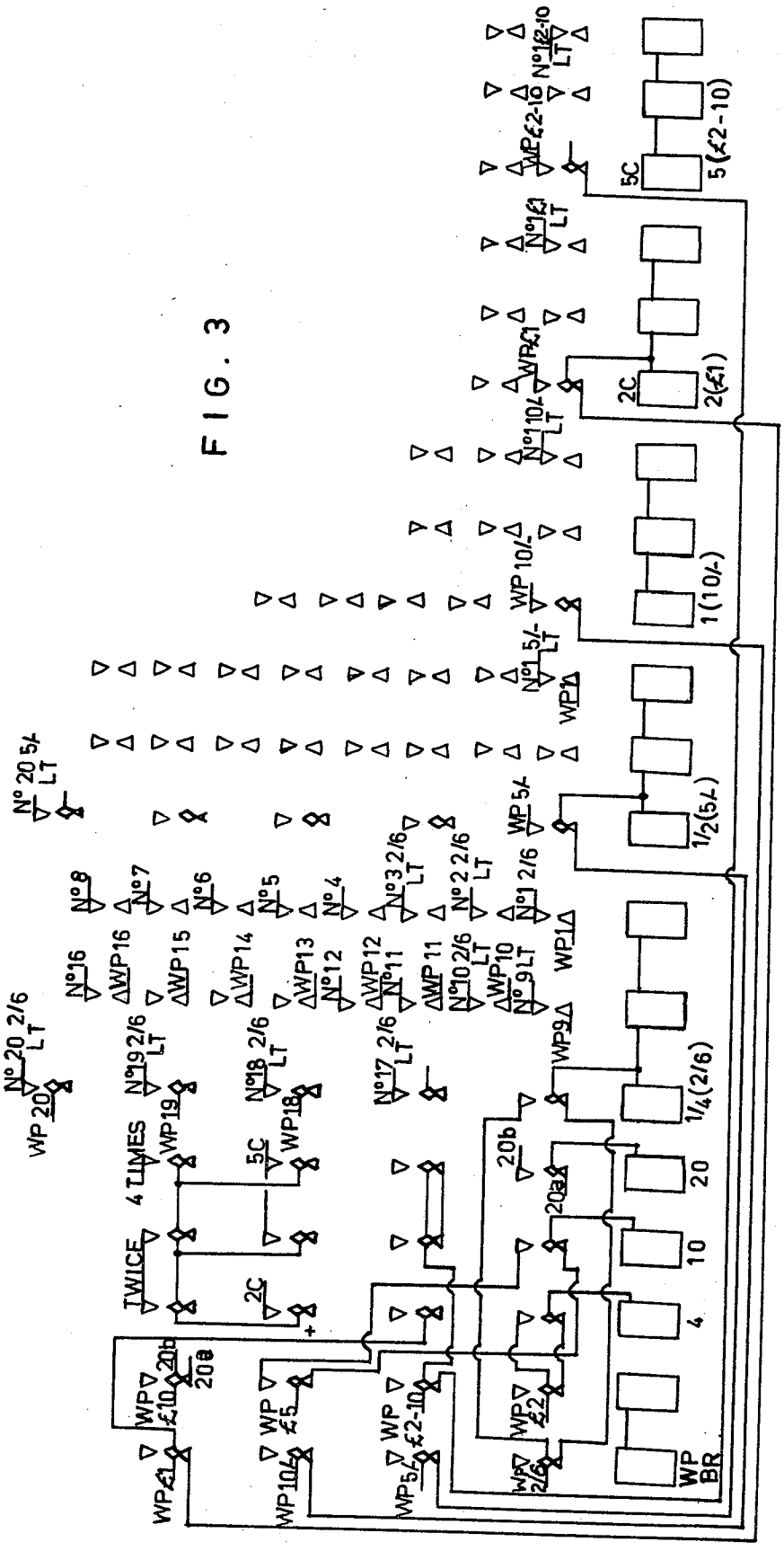
FIG. 2

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ELECTRICAL RELAYING SYSTEM FOR TRANSMISSION OF PARTICULARS OF BETTING WAGERS TO DISPLAY BOARD

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FIG. 3



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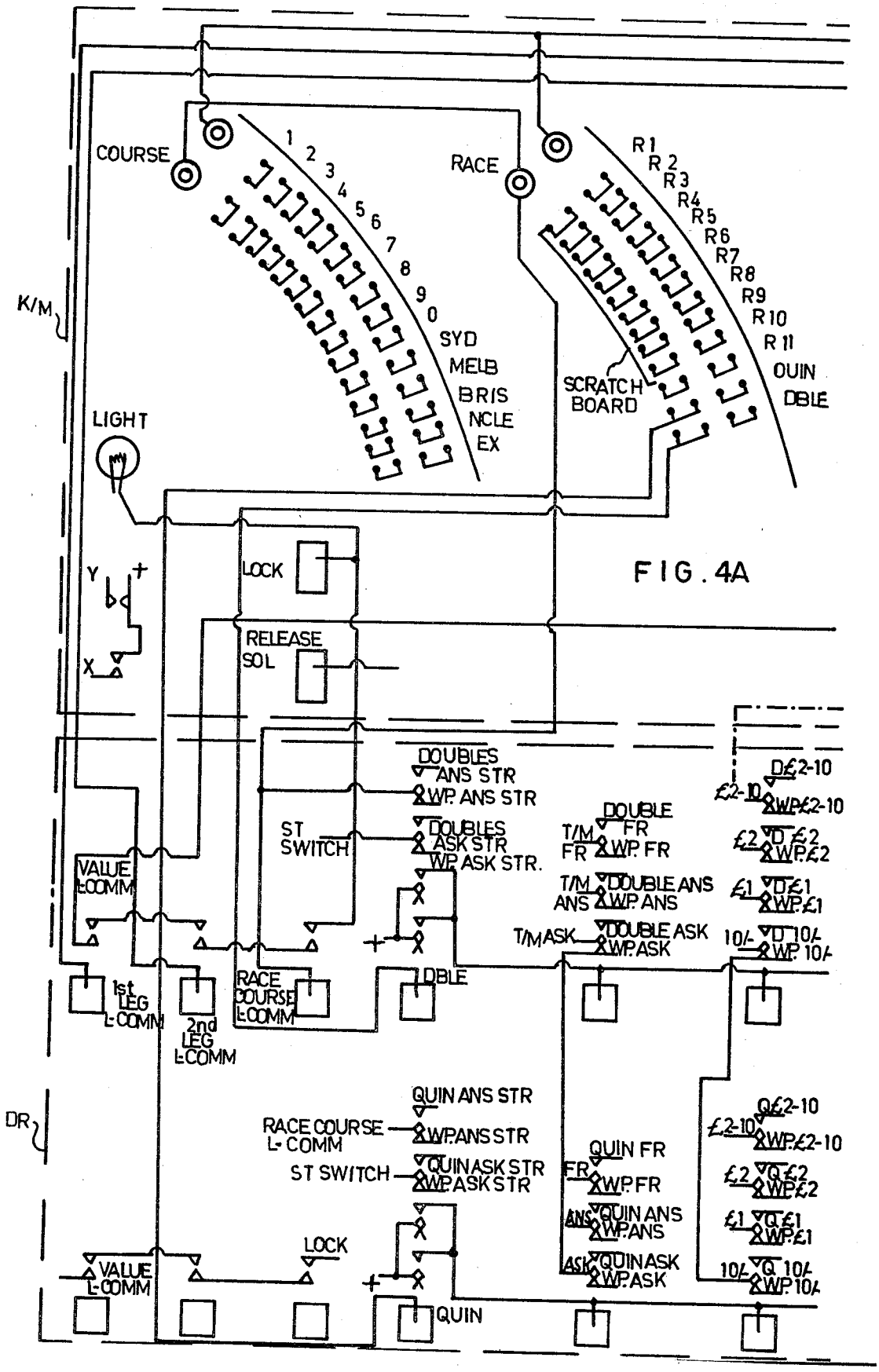


FIG. 4A

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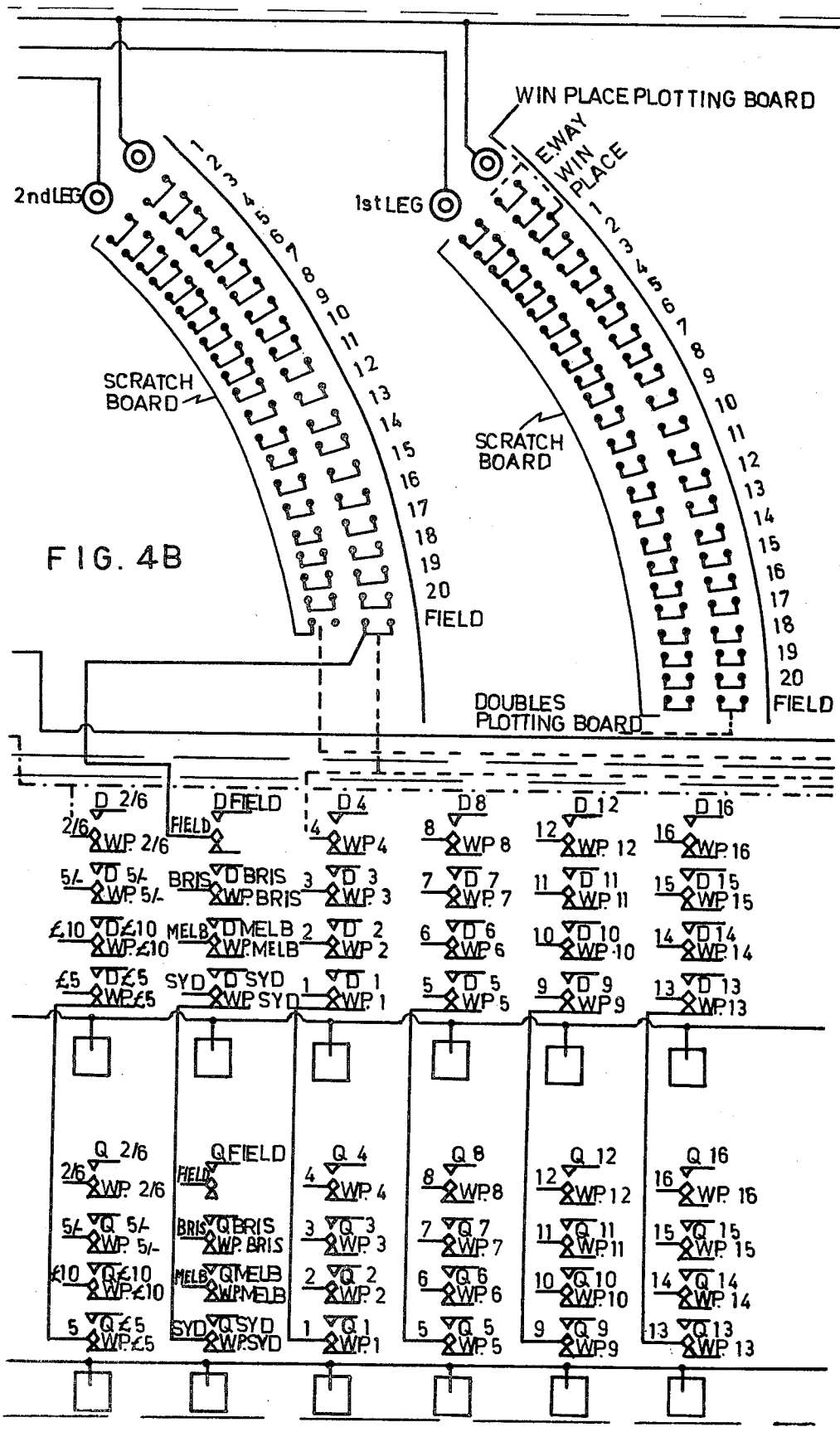


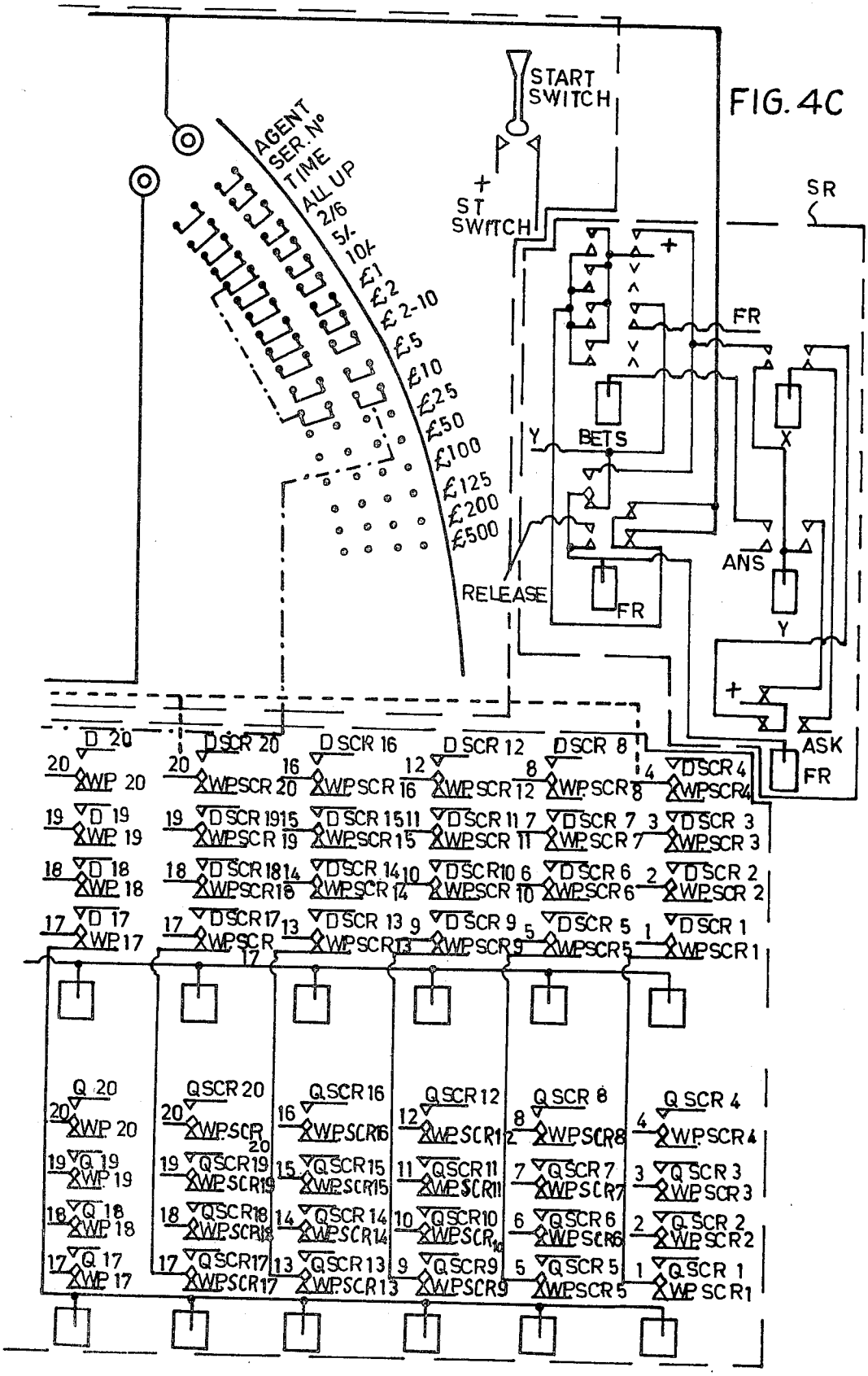
FIG. 4B

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ELECTRICAL RELAYING SYSTEM FOR TRANSMISSION OF PARTICULARS OF BETTING WAGERS TO DISPLAY BOARD

Filed Aug. 11, 1966 6 Sheets-Sheet 6

FIG. 4C



United States Patent Office 3,513,440
Patented May 19, 1970

3,513,440

ELECTRICAL RELAYING SYSTEM FOR TRANSMISSION OF PARTICULARS OF BETTING WAGERS TO DISPLAY BOARD

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Filed Aug. 11, 1966, Ser. No. 571,927
Int. Cl. H04q 3/00
U.S. Cl. 340—147 7 Claims

ABSTRACT OF THE DISCLOSURE

Electrical equipment for relaying three statistics of a betting wager by signals representing stake value, contestant and race identification between a keyboard machine and collating board having vertical and horizontal coordinates. There are connections from the keyboard machine to rows on the board to indicate a respective statistic, and one group of further connections to the windings of a set of relays to relay a second statistic of wagers, and another group of further connections to one side of contacts of the relays to relay a third statistic of wagers. The other side of the contacts are connected to the columns of the board, whereby all three statistics of a wager are indicated simultaneously at the intersection of a row and column on the board.

This invention relates to electrical relaying equipment for transmitting information between different locations in respect of the vital statistics of betting wagers, such as those placed in a pari-mutuel betting system.

Copending application Ser. No. 555,031 filed on June 3, 1966 describes a ticket printing and issuing machine utilized at an agency for registering betting wagers placed by patrons. A further copending application Ser. No. 571,908 filed on Aug. 11, 1966, describes an aid to an agent at an agency for gathering, collating and summating the wagers placed and which is in the form of a plotting board. The present invention has been devised to provide electrical means for signalling pre-arranged statistics of wagers registered at the ticket machines within an agency to a respective one of several plotting boards also at the agency.

A consideration of the specification of said application Ser. No. 571,908 will reveal that plotting is effected by lamp illumination and/or other visual means to provide the operator thereat with an instant indication of where his notations are to be made upon the plotting board.

It is the main object of this invention to provide electrical information relaying equipment which will efficiently convey between one or more ticket machines and one or more plotting boards sufficient information to enable the wager registered at the machine to be speedily recorded at a plotting board.

In its most general form the invention provides an electrical relaying system for signals indicative of the statistics of a betting wager placed on contestants in a projected contest, said signals being intended to pass between a registering location and a remote recording location, there being at least one ticket issuing machine at the registering location capable of producing signals representative of three statistics of a wager, viz stake value, contestant identification and race identification and at the recording location at least one plotting unit having co-ordinately arranged visual indication means each signifying a respective row or column of a chart upon the plotting unit, said system comprising connections from the ticket machine to respective ones of the individual indication means of one co-ordinate of the plotting unit for the relaying of a signal representative of a first one of the statistics being one of the two identification statistics of the registered wager thereby to indicate at the recording location a row or column of the chart corresponding to the statistic signalled, a group of relays, connections from normally open contacts of the relays to respective ones of the individual indication means of the other co-ordinate of the plotting unit, connections to the contacts of each relay in the group from the ticket machine for the relaying of a signal representative of one of the two remaining statistics, said last mentioned connections being duplicated from relay to relay in the group, and individual connections to the windings of the relays from the ticket machine for the relaying of a signal representative of the other of the two remaining statistics, whereby at the recording location a column or row of the chart is also indicated so that an area of the chart at the intersection of the indicated row and column is identified to the recording operator.

The invention in a more specific form provides an electrical relaying system for conveying predetermined statistics of individual betting wagers from one or more ticket issuing locations to a collating point, there being at each said location at least one ticket printing machine having selector levers operable to indicate stake value, contestant identification, race identification and type of bet in respect of each wager made, and there being at the collating point at least one plotting chart of co-ordinate form provided with visual signalling elements individual to respective rows and columns on the chart, the relaying system comprising two control relay groups for the row and column signalling elements, a distributing relay group for channeling signals from a ticket machine to a pair of control relay groups according to the type of bet involved, individual sets of electrical contacts supplied with marking potential by setting of the selector levers of the ticket machine, a supervisory relay group providing a supervised source of the potential for the contacts, a connection through the distributing relay group to the control relay groups for the marked contacts, the marking of lines connected to the contacts representative of contestant identification and stake value being combined by relay action in a first one of said control relay groups to energise a respective signalling element associated with one of the co-ordinates at the plotting chart, and the marking of lines connected to the contacts representative of race identification and type of bet combined by relay action in the other of said control relay groups to energise a respective signalling element associated with the other co-ordinate at the plotting chart whereby both a row and column on the chart indicative of the signalled statistics of the wager made is indicated to a notation operator.

The invention will now be described in greater detail with reference to the accompanying drawings, in which:

FIG. 1 shows schematically the layout of circuitry for selectively energising the indicating means of a respective row of an associated plotting board;

FIG. 2 is a diagrammatic representation illustrating the principal features of construction of a plotting board suitable for use with the circuitry of this invention;

FIG. 3 shows schematically the layout of circuitry for selectively energising the indicating means of a respective column of the same plotting board as referred to above in connection with FIG. 1; and

FIG. 4 composed of parts A, B and C intended for side by side location, is a schematic representation of a keyboard or ticket issuing machine and associated distributing relay groups common to several ticket machines.

With reference particularly to FIG. 4 the ticket machine K/M comprises five selector levers each of which serves an individual one of the five contact quadrants shown in the drawing. When a respective selector lever has been moved to the required position the two common contractors shown in the drawing above their double columns of contacts will be displaced to a position where they are in electrical contact with a respective pair of contacts corresponding to the setting position of the selector lever. The lower pairs of contacts on the three middle quadrants are connected to a "scratch" board from where they are supplied with marking potential which will indicate whether or not a contestant is signalled as a definite starter in the event to be contested. One form of "scratch" board which may be utilized for the supply of these marking potentials is the system described in the specification of copending applicatoion Ser. No. 571,908 filed on Aug. 11, 1966.

Potential is not normally supplied to the upper common contactor of the contact quadrants but is provided only when particulars of a wager registered upon the selector levers of the ticket machine K/M is to be signalled to a plotting board within the agency. It is also possible, however, to employ a similar form of signalling to relay this information from the agency to a distant location situated away from the agency.

Application of potential to these upper contactors is achieved by operation of the BETS relay in the supervising relay group SR (see FIG. 4C). Operation of this relay occurs as follows:

At each ticket machine K/M a start switch is provided in the form of a manual switch operable for asking from the plotting table if registration of a wager may be made. As can be seen from FIG. 4 its operation places potential upon line ST switch which is connected from the K/M machine to the common distributing relay group shown in the figure and connected to the moving contact of the third set of contacts of the relays DBLE and QUIN. As a final result of sending an asking signal it is desired to operate the solenoid LOCK and simultaneous illumination of the lamp which indicates to the operator that the wager may be registered. Operation of the solenoid LOCK will free for operation the printing lever of the respective K/M machine. The release solenoid is operated upon a marking potential being sent from the plotting table to the line F.R. to free the keyboard machine for further use. Operation of the release solenoid, therefore, will permit the printing lever to return to normal so that a further wager may be either keyed or indicated by lever setting but will result in locking of the machine when particulars of the wager are offered to the respective plotting table preparatory to a responding ANS signal. The printing lever prior to being locked in a signal offering condition closes contacts X and Y to operate relays X and Y in the SR unit. Both realys lock up upon receipt of the signalling pulse. Operation of these two relays places marking potential on the ASK line so that upon receipt of a responding signal on the line ANS and subsequent closure of the BETS relay potential is applied to the common upper contactors of the quadrants so that signalling of the wager proceeds to the plotting table. When duly recorded at the table the operator at that position will transmit a marking signal on the line F.R. which will restore the relays of the SR unit to normal, disconnect potential from the common contactors and supply energizing potential to the release solenoid.

The line ASK from each K/M machine passes through a cycling, or similar, unit to the moving contact of the lower changeover contacts of the second winding of the DBLE relay. In this way only the K/M machine can be connected to the DR unit at any time. It can be seen that if, for instance, the type of wager represents a doubles bet then all of the windings of relay DBLE are operated. The marked line T/M ASK will then be connected

to line DOUBLE ASK which will be connected in turn to the plotting table serving to record doubles wagers. A responding signal will then be received on line DOUBLE ANS and thence to line ANS via connection T/M ANS. Respective windings of the relay DBLE have their contacts connected with respect to the individual positions of the quadrants on the K/M machines so that particulars signalled by the setting of the respective selector levers are connected through the contacts to lines corresponding to a double wager or a win-place wager depending upon the appropriate condition of the relay DBLE. A similar functioning of the windings of the relay QUIN is obtained.

As explained in the specification of said application Ser. No. 571,900 the plotting board generally illustrated by FIG. 2 of the present drawings is designed to permit recording of vital statistics of wagers by an operator's notation within particular squares upon the removable chart on the plotting board. The particular square within which the notation is to be made will be indicated by illumination of lamps arranged in two sets, one set signifying an individual column with another signifying an individual row. Of course, other visual indicating means besides lamps may be utilized, providing that they respond to an electrical potential. The notation will be made by the operator at the intersection of the signified row and column.

Two illuminating potentials must therefore be applied to the plotting board upon receipt of each signalling operation from the connected ticket machine K/M. It will be the purpose of each row upon the chart, or separate inserted chart strips if provision is to be made for removal of strips individual to races, to indicate all those wagers of a particular type in a respective race. In other words, one row might contain all wagers placed on every contestant in race 2 for a win. A separate column will show the place wagers on all contestants in the same race 2. Each-way wagers will be indicated by signifying two rows, i.e. the win row and the place row corresponding to race 2. The columns will be indicated by lamps which upon illumination will signify certain values of stakes in wagers in respect of individual contestants. Consequently, each contestant will be provided with multiple lamps each indicative of a different stake value. It is also envisaged that in some circumstances large, or, for that matter any stake values may be indicated by illumination of several lamps.

For convenience of description the line of lamps arranged above the notation chart upon the plotting board to indicate respective ones of the vertical columns will be referred to as the contestants' lamps and columns, and the horizontal rows with their associated vertical bank of lamps for illuminating singly either a row over its full length or indicating a respective row from one end will be referred to as the race lamps and columns.

Reference to FIG. 4 indicates that the multiplied pairs of contacts in the upper and lower quadrant of the second leg selector are connected to respective ones of the moving contacts of the DBLE relay and these connections are relayed through the bottom fixed normally closed contacts of this relay to the respective moving contacts of the QUIN relay. Furthermore, the upper quadrant of the contacts of the value selector are also connected to respective ones of the moving contacts of these two relays. These interconnections are depicted by means of broken lines in FIG. 4. A similar connection is made to the moving contacts of the QUIN relay through the bottom fixed normally closed contacts of the DBLE relay for the value lines. For simplicity these connections are only shown in the case of the first contact of both relays.

It will now be assumed that a wager has been received by the machine T/M which involved a 10/- stake for a win on contestant No. 7 in race 2 at the Sydney meeting. A corresponding race lamp, or set of lamps, will require to be illuminated to provide the necessary visual indication to the plotting operator at the correct plotting board

within the agency. This is achieved by marking of the line SYD resulting from the application of potential to the SYD contacts in the upper quadrant of contacts associated with the race course selector. Potential is thus applied from this line to the moving contact of the first set of contacts associated with the fifth coil of the DBLE relay. Again for simplicity the actual connecting lead is not shown. This potential is applied through the normally made lower contact to the moving contact of the first set of contacts of the fifth coil of the QUIN relay. Through the normally made lower contact of this set potential is applied to line W.P. SYD. This line is connected to the three energizing coils of the SYDNEY relay of the win/place plotting board (FIG. 1) so that this relay is then operated. One side of each of the normally open contacts of this relay is connected away to the respective lamps associated with the race rows formed on the plotting chart while the other side of each of its open contacts is connected to one side of appropriate normally open contacts of the win and place relays.

With operation of the BETS relay in the SR unit potential is applied through the upper common contactor of the first leg quadrant to the multiplied contacts labelled WIN and through a connection to the line WIN at the left of FIG. 1. Potential on this line is connected over the normally closed second contacts of the BR relay and the lower contacts of the first set of the WIN relay to energize its coils. It is locked on by potential then derived from the line WIN over the now made upper contacts of the first set of the WIN relay. One side of the remaining contacts of the WIN relay is connected directly to the multiplied contacts of the upper quadrant of the race selector on the K/M machine. Therefore, with operation of this relay the marked one of the race contacts in the quadrant will connect potential over the corresponding contact of the relay and through the now closed contacts of the relay W.P. SYDNEY to its respective race lamp or lamps. In this way the plotting board is provided with an indication of the race identification and type of bet with which the registered wager is concerned.

With reference to FIG. 1 it will be seen that there are other relays labelled W.P. MELBOURNE and W.P. BRISBANE. These two relays have their contacts connected from one side to other plotting boards or other sections of the same board which are intended to record wagers on races contested in Melbourne and Brisbane, respectively. The connections to and from the contacts of these relays is similar to that described above.

In a similar manner the functioning of the circuitry may be traced in respect of place type bets in which case the relay PLACE instead of relay WIN will be operated. If the wager registered at the K/M machine involves each-way betting then relay EACHWAY is operated from line EACHWAY and results in operation of both relays WIN and PLACE so that both the WIN and PLACE rows in respect of race **2** are illuminated.

With reference now to FIG. 3 it will be apparent how illumination of the contestants' lamps is obtained in response to signalling stake values and contestant numbers from a K/M machine. The lamp illumination circuit depicted in fragmentary form in FIG. 3 includes five stakes' relays, each of three windings, one side of whose normally open contact are connected serially to the contestant lines W.P. **1** . . . W.P. **20** proceeding from one side of the normally closed contacts associated with the five medial windings of the DBLE and QUIN relays of FIG. 4. The other side of these normally open contacts are connected to individual contestants' lamps on the win/place plotting board for the race meeting in question. The lines W.P. **1** . . . W.P. **20** are multipled to corresponding contacts of each of the five stakes' relays. Thus, if one of the stakes' relays should be operated when a particular one of the contestants' lines is marked, corresponding to the setting of the respective selector lever, illuminating potential will be connected to the contestant lamp relevant to the contestant number and stake value selected at the K/M machine.

Should the stake value itself correspond to the value assigned to any stake relay, such as for example, stakes' relay ½(5/-), then marking on line W.P. 5/- will energize stakes' relay ½(5/-) via the normally closed second contacts of the left hand winding of relay W.P. BR and lower contacts of the first winding of the stakes' relay ½(5/-). With operation of relay ½(5/-) potential continues to be applied to its windings by changeover of its first contacts to the marked line W.P. 5/-. If, say, contestant line W.P. **20** carries marking potential then operation of relay ½(5/-) transfers this potential through closing of its contacts to the contestant lamp No. **20** 5/- LT.

Provision is made in the circuitry shown in FIG. 3 for signalling of stake values which are multiples of the values assigned to the stakes' relays, that is a £2 stake is made to result in a double operation of stake relay **2** (£1), and a £10 stake value to result in quadruple operation of stake relay **5** (£2.10.0). Assuming that the stake value to be signalled is £2 then stake line W.P. £2 will become marked across the normally closed contacts of the third set in the third winding of the DBLE and QUIN relays. This potential is applied over the normally closed lower contacts of the second winding of relay W.P. BR and **4** to the winding of the latter relay. A holding circuit for this winding is provided by changeover of its lowermost contacts while potential is placed upon line **2***c* to effect operation of stakes' relay **2** (£1) thereby illuminating an appropriate contestant lamp. Furthermore, operations of relay **4** places potential upon the "twice" line to which is connected a suitable repeater not shown in the drawings. The purpose of the repeater will be to restore similar marking conditions to the stakes' relay **2** (£1) subsequent to the plotting board operator's manipulation of his ER key. This will then result in a double indication at the plotting board of a two unit stake value which according to the system of labelling used throughout the equipment described will be representative of a £1 value. In a similar way a £10 stake value may be indicated at the plotting board by illumination of identical lamps on four consecutive occasions so that the £10 value is manually noted by the operator by four notations in the £2.10.0 square on the plotting chart. If preferred, however, other means besides repeating of signalling may be employed to indicate to the operator that the notation representative of the wager value signalled to him is to be multiplied a selected number of times.

It will be the task of the plotting board operator after having completed notation of the particulars of the wager offered from the K/M machine to manually depress his BR button in order to disconnect the signalling K/M machine and restore it together with the plotting board to an idle condition preparatory to receipt of a further wager. Depression of the BR button places potential upon line BR to operate the W.P. BR relays situated in both the race lamps energizing circuitry (FIG. 1) and contestants' lamps energizing circuitry (FIG. 3). Operation of these relays disconnects the applied potential through the marked lines from the distributing relay groups D/R to which the signalling K/M machine is connected. The immediate result is for all relays in the lamps' circuits to restore to normal in readiness for another wager signalled. Furthermore, the marked BR line is signalled back to the K/M machine as a marking potential upon a F.R. line to cause operation of relay F.R. in the S/R unit and disconnection of potential to the BETS relay. The entire system is thus restored to normal and the betting ticket printed and issued to the patron.

It will be seen that several plotting boards will be required according to the expected amount of business to be transacted at any meeting or in respect of particular types of wagers. Under most conditions, therefore, a win-place plotting board will be provided individual to a single race

meeting or one of several race meetings. Usually a doubles and quinella plotting board will be supplied individual to a single race meeting. The bulk of business transacted in respect of other meetings will be so small as not to justify supply of an individual plotting board. Recordal of these wagers may be effected by existing practices.

What I claim is:

1. An electrical relaying system for signals indicative of the statistics of a betting wager placed on contestants in a projected contest, said signals being intended to pass between a registering location and a remote recording location, there being at least one ticket issuing machine at the registering location capable of producing signals representative of three statistics of a wager, viz stake value, contestant identification and race identification and at the recording location at least one plotting unit having co-ordinately arranged visual indication means each signifying a respective row or column of a chart upon the plotting unit, said system comprising connections from the ticket machine to respective ones of the individual indication means of one co-ordinate of the plotting unit for the relaying of a signal representative of a first one of the statistics being one of the two identification statistics of the registered wager thereby to indicate at the recording location a row or column of the chart corresponding to the statistic signalled, a group of relays, connections from normally open contacts of the relays to respective ones of the individual indication means of the other co-ordinate of the plotting unit, connections to the contacts of each relay in the group from the ticket machine for the relaying of a signal representative of one of the two remaining statistics, said last mentioned connections being duplicated from relay to relay in the group, and individual connections to the windings of the relays from the ticket machine for the relaying of a signal representative of the other of the two remaining statistics, whereby at the recording location a column or row of the chart is also indicated so that an area of the chart at the intersection of the indicated row and column is identified to the recording operator.

2. An electrical relaying system according to claim **1**, wherein the ticket machine also produces a signal representative of a fourth statistic of a wager registered which is namely the type of wager made, and wherein a second group of relays is provided, said connections to the plotting unit for said first one of the statistics and connections from the ticket machine for relaying signals representative of the fourth statistic being via said second group of relays, signals representative of one of said last mentioned two statistics passing to respective contacts of each relay and signals representative of the other of said two statistics passing to respective ones of the windings of the second relay group.

3. An electrical relaying system according to claim **2**, wherein a second plotting unit is utilized and wherein the second group of relays comprises two relays, the contacts of one of these two relays being connected to one plotting board and the contacts of the other being connected to the second plotting board.

4. An electrical relaying system according to claim **1**, wherein there are a plurality of ticket machines capable of simultaneous registration of wagers and production of signals representative thereof, and wherein there is provided a cycling selection device interposed between the ticket machines and the signal relaying connections to the recording location, said cycling unit permitting connection to said relaying connections of the signals of only one ticket machine at a time.

5. An electrical relaying system according to claim **1**, wherein the ticket machine from which a wager being recorded is being relayed is locked against use for registration of a subsequent wager, and wherein there is provided at the recording location a manually operable means for generating at the will of the operator a signal to free the ticket machine for registration of a further wager.

6. An electrical relaying system according to claim **5**, wherein signalling of stake values in any part of the system employs five distinct signalling lines each individual to a different predetermined value, and wherein there is provided a repeater unit responding to the said freeing signal to repeat the wager indications at the plotting unit when the stake of the registered wager does not correspond with the stake values allocated to the signalling lines but is a multiple of one of said values.

7. An electrical relaying system for conveying predetermined statistics of individual betting wagers from one or more ticket issuing locations to a collating point, there being at each said location at least one ticket printing machine having selector levers operable to indicate stake value, contestant identification, race identification and type of bet in respect of each wager made, and there being at the collating point at least one plotting chart of co-ordinate form provided with visual signalling elements individual to respective rows and columns on the chart, the relaying system comprising two control relay groups for the row and column signalling elements, a distributing relay group for channelling signals from a ticket machine to a pair of control relay groups according to the type of bet involved, individual sets of electrical contacts supplied with marking potential by setting of the selector levers of the ticket machine, a supervisory relay group providing a supervised source of the potential for the contacts, a connection through the distributing relay group to the control relay groups for the marked contacts, the marking of lines connected to the contacts representative of contestant identification and stake value being combined by relay action in a first one of said control relay groups to energize a respective signalling element associated with one of the co-ordinates at the plotting chart, and the marking of lines connected to the contacts representative of race identification and type of bet being combined by relay action in the other of said control relay groups to energize a respective signalling element associated with the other co-ordinate at the plotting chart whereby both a row and column on the chart indicative of the signalled statistics of the wager made is indicated to a notation operator.

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HAROLD I. PITTS, Primary Examiner

U.S. Cl. X.R.

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